



University of Toronto Quality Assurance Process (UTQAP) Cyclical Review: Final Assessment Report and Implementation Plan

Program(s) Reviewed:	Environmental Science, MEnvSc, PhD
Division/Unit Reviewed:	Graduate Department of Physical and Environmental Sciences
Commissioning Officer:	Dean and Vice-Principal (Academic), UTSC
Reviewers (Name, Affiliation):	<ol style="list-style-type: none">1. Prof. Edward Nater, PhD, Department of Soil, Water and Climate, University of Minnesota2. Prof. John Smol, PhD, Department of Biology, Queen's University3. Prof. Philippe Van Cappellen, PhD, Department of Earth and Environmental Sciences, University of Waterloo
Date of Review Visit:	March 31 – April 1, 2016
Date Reported to AP&P:	November 1, 2016

Unless otherwise noted, all bulleted comments apply to all programs reviewed.

1 Outcome

The Committee on Academic Policy and Programs (AP&P) concluded that the Decanal response adequately addressed the review recommendations.

2 Significant Program Strengths

- Strong Master of Environmental Science program, which has successfully responded to the growing demand for professional master's graduates in the environmental area
- High quality PhD students with very positive student experiences
- Highly productive faculty with excellent publication records

- Very positive departmental atmosphere, excellent morale, exceptionally good student support, and enthusiastic staff
- Compares favorably against the majority of programs in environmental sciences in North America
- Excellent laboratory facilities, in particular in areas of environmental analytical chemistry

3 Opportunities for Program Enhancement

- Enhancing the strong professional master's program, by eliminating content overlap, balancing the intensity of requirements, and offering sufficient experiential learning opportunities in all fields
- Allowing the faculty in geoscience to present a proposal to add Environmental Geoscience as a fourth field
- Exploring opportunities for team teaching, to reflect the breadth and interdisciplinary nature of the programs
- Creating two-year research master's degree, and engaging in broad-based consultations with all faculty and with cognate units as it is developed
- Reducing guaranteed funding for PhD students from "up to 5 years" to 4 years
- Revisiting the complement plan and hiring strategically in emerging areas
- Finding ways to better include all faculty in decision making, especially those in biology
- Exploring closer involvement with cognate units, specifically the Faculty of Forestry and the Faculty of Applied Science and Engineering

4 Implementation Plan

Immediate Term (6 months)

- Enhancing the strong professional master's program
 - The faculty will make the synergies between perspectives offered in various courses more explicit for the students.
 - GDPES has made a conscious effort to balance perspectives to include a diversity of relevant examples, and that a planned future hire with a terrestrial background will resolve this concern.
 - GDPES notes the CCIA courses have been carefully sequenced to ensure students are well positioned, both in terms of background and available time, to select and prepare for their internship in the second semester.
 - The Department is working hard to find, and incorporate, more laboratory and field experiences for students in BITAS and CB, including a planned excursion in October 2016.

- Allowing the faculty in geoscience to present a proposal to add Environmental Geoscience as a fourth field
 - The geoscientists have been invited to bring forward a full proposal during the 2016-17 academic year.

Medium Term (1-2 years)

- Exploring opportunities for team teaching
 - GDPES is having active discussions about how to actualize team teaching opportunities in ways that are consistent with the best pedagogy. In particular, on the CB side of the program the faculty are working on a team-taught course on Biodiversity Methods.
- Creating two-year research master's degree
 - Over the coming year, in consultation with the Office of the Vice-Provost Academic and the Chairs of DPES and Biological Sciences, the GDPES Chair will be working closely with the Vice-Dean Graduate to develop a proposal. The intention is to consult very broadly with faculty in all cognate units.
- Exploring closer involvement with cognate units
 - The GDPES is fully open to closer ties with cognate units. They note there are already cross-appointed faculty from both the Faculty of Forestry and the Faculty of Applied Science and Engineering who are active in the PhD program, and they will continue to expand on these as opportunities arise.

Longer Term (3-5 years)

- Reducing guaranteed funding for PhD students
 - GDPES notes that the current funding structure for the PhD works extremely well given that there is currently no research Master's program. Moreover, they believe this structure may be contributing to the majority of students completing their program in a timely fashion (the average time to completion is currently 4.86 years). However, as GDPES works towards the launch of a research Master's, they will revisit the funding structure for the PhD and adjust it as necessary.
- Revisiting the complement plan and hiring strategically in emerging areas
 - Both the DPES and the UTSC Department of Biological Sciences have new hiring lines over the next four years that will support the graduate programs. In addition, teaching stream faculty will also be given more opportunity to teach in the programs to broaden the range of topics to which the students can be exposed.
- Finding ways to better include all faculty in decision making
 - The Graduate Chair met with the Biology faculty on June 17, 2016 to discuss ways to better integrate them into the program in the short term. This fruitful discussion was continued at meeting of the GDPES faculty on June 20, 2016, and again with the Dean on June 29, 2016. Facilitated by the Vice-Dean Graduate, the

role of Biology in the program over the long term will be under active discussion in the coming months.

The Dean's Office will follow up annually with the unit to assess progress.

5 Executive Summary

The reviewers identified the programs' strengths as strong Master of Environmental Science program; high quality PhD students; highly productive faculty with excellent publication records; very positive departmental; comparing favorably against the majority of programs in environmental sciences in North America; and excellent laboratory facilities. The reviewers recommended that the following issues be addressed: enhancing the strong professional master's program; allowing the faculty in geoscience to present a proposal to add Environmental Geoscience as a fourth field; exploring opportunities for team teaching; creating two-year research master's degree; reducing guaranteed funding for PhD students from "up to 5 years" to 4 years; revisiting the complement plan and hiring strategically in emerging areas; finding ways to better include all faculty in decision making, especially those in biology; and exploring closer involvement with cognate units. The faculty will strengthen communication about program choices and add field and lab experiences for CB and BITAS students. The geoscientists have been invited to bring forward a full proposal for a fourth field during the 2016-17 academic year. The GDPES Chair will be working closely with the Vice-Dean Graduate to develop a proposal for a two-year research masters degree. Both the DPES and the UTSC Department of Biological Sciences have new hiring lines over the next four years that will support the graduate programs. The Committee on Academic Policy and Programs (AP&P) concluded that the Decanal response adequately addressed the review recommendations.